

## How much weight is "ENOUGH weight" for the bar ends?

### Bar-end weight theory (From Various Sources):

As your motorcycle runs, the handlebars form a resonant mechanical system. That is, the bars tend to shake at a certain frequency. If this frequency is any component of the characteristic frequency spectrum of your motorcycle, then the bars start to flap away, bothering your hands.

### More technical:

As your motorcycle runs, the handlebars form a resonant mechanical system. That is, the bars tend to shake at certain frequencies, in certain ways. The lowest frequency, or fundamental, is a motion you could call, "flapping." This is where the center of the bars, between the clamps, is motionless, and the tips of the bars are vibrating most. This is typically the strongest mode of vibration, and the first one you should attack. If this frequency is any component of the characteristic frequency spectrum of your motorcycle, then the bars start to flap away, bothering your hands.

### A way to solve the problem:

Dampen the vibration. From an engineering standpoint, dampening means eliminating the resonant frequency of the handlebars. The proper way to do this is with a precisely designed flexible attachment between the vibrating part and a solidly mounted part, in other words, a shock absorber. The flexible attachment must be tuned to exactly oppose the specific frequencies of resonance, so vibration put into the bars will not be allowed to build up in them and hurt your hands.

### So How much weight is proper weight?

we don't have to re-invent the wheel. Over so many years, many motorcycle companies researched about this and the accepted weight is 7 oz total. That's why most companies internationally make the bar end to weight around 150-200 grams. as vibration dampening is more at this point. Anything falls outside this range will not help, other than an ornamental purpose.

And the bar end needs to be aerodynamic and must have proper insulation from inside. Most of the cheap bar ends come with metal anchors inside which leads to vibrations. And almost all the properly designed product will have some sort of rubber anchors inside the pipe to avoid the vibrations originate from the Bar ends

Here are some examples for metal anchored bar ends which themselves lead to vibrations



Below are the examples of rubber anchored bar ends for proper vibration insulation.

